

05/08/14 Agenda

Return Papers

- Homework
- Quiz

- Chapter 9 - Quadratic Functions & Equations
 - Quadratic Formula

Homework

- Finish Quadratic Formula Notes Sheet

Warm Up

Solve the following quadratics using **ZPP**:

$\frac{1}{2}$ $\frac{20}{10}$

$$x^2 + 3x - 10 = 0$$

$$(x+5)(x-2) = 0$$

$$\begin{array}{r} x+5=0 \\ -5 \quad -5 \\ \hline x = -5 \end{array}$$

$$\begin{array}{r} x-2=0 \\ +2 \quad +2 \\ \hline x = 2 \end{array}$$

$$x^2 + 12x + 20 = 0$$

$$(x+2)(x+10) = 0$$

$$x = -2 \quad x = -10$$

Do you ever feel like factoring takes too long to solve a quadratic?

Do you ever feel like just using a formula to solve?

Do you ever encounter a quadratic you just can't factor?

Then we have something just for YOU!!!

Introducing.....

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The Quadratic Formula!!

Example:

$$Ax^2 + Bx + C = 0$$

Looking at the first problem again, let's use the quadratic formula to solve it.

$$x^2 + 3x - 10 = 0 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = 1 \quad x = \frac{-(3) \pm \sqrt{(3)^2 - 4(1)(-10)}}{2(1)}$$

$$b = 3$$

$$c = -10$$

$$x = \frac{-3 \pm \sqrt{9 + 40}}{2} = \frac{-3 \pm \sqrt{49}}{2}$$

$$= \frac{-3 \pm 7}{2}$$

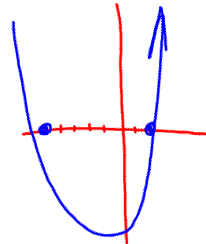
$$x = \frac{-3+7}{2} \quad x = \frac{-3-7}{2}$$

$$x = \frac{+4}{2} \quad x = \frac{-10}{2}$$

$$x = 2 \quad x = -5$$

Solutions: $x = 2 \quad x = -5$

There are 2 solutions, so this parabola crosses/touches the x-axis 2 times.



Unit 9 - Day 7 - The Quadratic Formula

May 8, 2014

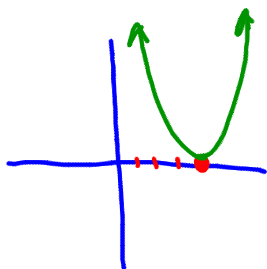
Use the quadratic formula to solve the following quadratics:

$$1x^2 - 8x + 16 = 0 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\begin{aligned} a &= 1 \\ b &= -8 \\ c &= 16 \end{aligned} \quad x = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(16)}}{2(1)}$$

$$x = \frac{8 \pm \sqrt{64 - 64}}{2}$$

$$x = \frac{8 \pm \sqrt{0}}{2} = \frac{8 \pm 0}{2}$$



$$x = \frac{8+0}{2} \quad x = \frac{8-0}{2}$$

$$x = 4 \quad x = 4$$

Solutions: $x = 4$

There are 1 solutions, so this parabola crosses/touches the x-axis 1 times.

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Unit 9 - Day 7 - The Quadratic Formula

May 8, 2014

Use the quadratic formula to solve the following quadratics:

$$4x^2 - 7x = -2$$

$+2 \quad +2$

$$4x^2 - 7x + 2 = 0$$

$a = 4$
 $b = -7$
 $c = 2$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
$$\frac{7 \pm \sqrt{17}}{8}$$
$$\frac{7 + 4.12}{8} \quad \frac{7 - 4.12}{8}$$

Solutions: _____

There are _____ solutions, so this parabola crosses/touches the
x-axis _____ times.



Unit 9 - Day 7 - The Quadratic Formula

May 8, 2014

Use the quadratic formula to solve the following quadratics:

$$x^2 - 4x + 45 = 0 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = 1$$

$$b = -4$$

$$c = 45$$

$$X = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(45)}}{2(1)}$$

$$X = \frac{4 \pm \sqrt{16 - 180}}{2}$$

$$X = \frac{4 \pm \sqrt{-164}}{2}$$

w

NO
SOLUTION

YOU
CAN'T TAKE
THE SQUARE
ROOT OF A
NEGATIVE
NUMBER

Solutions: NONE

There are NO solutions, so this parabola crosses/touches the
x-axis 0 times.

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